



The New DoD Systems Acquisition Process

Why Change?

- Section 912 Studies
- Defense Science Board Reports
- Industry Input
- Practice

THE FUTURE OF REFORM

“...[T]he U.S. defense establishment must be transformed to address our new circumstance. The need to swiftly introduce new weapons systems is clear.”

-- Secretary of Defense Rumsfeld

(confirmation testimony, January 11, 2001)

KEY FOCUS AREAS

- **Deliver advanced technology to warfighters faster**
 - Rapid acquisition with demonstrated technology
 - Full system demonstration before commitment to production
- **Reduce total ownership costs and improve affordability**
 - Cost as a requirement that drives design, procurement, and support
 - Increased competition
- **Deploy interoperable and supportable systems**
 - Interoperability demonstrated prior to production
 - Integration of acquisition and logistics
 - Improved software management

Improved performance (including quality) at lower cost.

PROBLEMS WITH CURRENT POLICY

- Only addresses systems acquisition - not total acquisition system
- Treats evolutionary approaches and innovations as “non-traditional” excursions
- Endorses “tailoring” but provides no amplifying guidance to assist acquisition strategy development
- Provides no firm decision criteria

Our current process and practices:

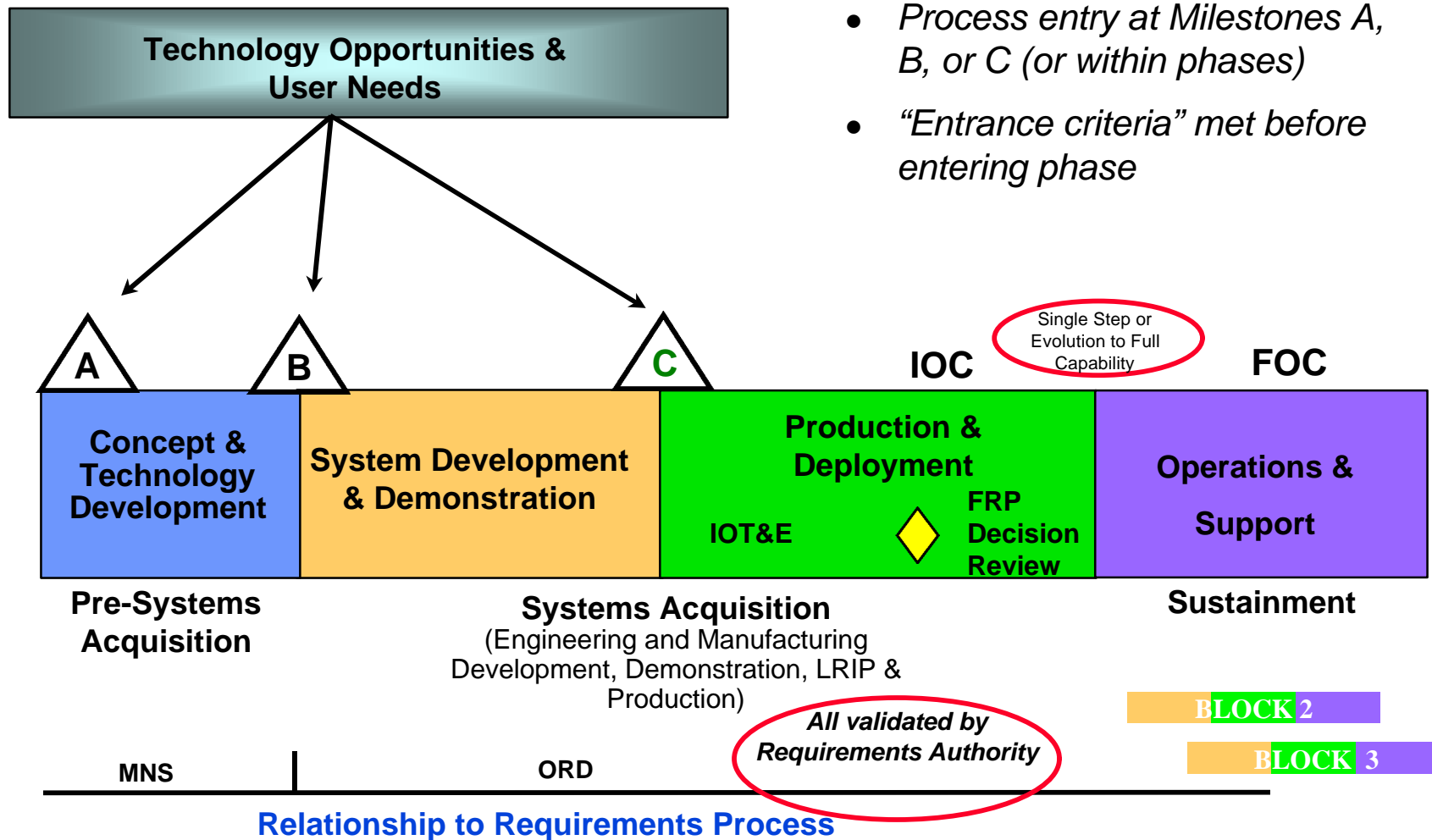
- Take too long and cost too much
- Are incompatible with modern technology cycles

Deliver Advanced Technology Faster

New Model

- ***Technology opportunity and mission need present*** - before entering acquisition process
- ***Multiple process paths*** - not just one way of entering systems acquisition
- ***Evolutionary acquisition*** - based on *time-phased requirements* - preferred (but not only) approach
- **Technology development *separated* from systems integration** - achieve proven technology before beginning systems-level work at Milestone B
- ***“LRIP” more important Departmental commitment*** - than “Full Rate”
- ***“Entrance criteria”*** met -- before entering next phase
- ***Operations, Support, and Disposal*** - part of acquisition process

The 5000 Model



- Process entry at Milestones A, B, or C (or within phases)
- “Entrance criteria” met before entering phase

Deliver Advanced Technology Faster (con't)

Test and Evaluation

- **Test & Evaluation will be *integrated* throughout the acquisition process** - early, up-front involvement of T&E community in requirements process and design of an integrated test strategy and early operational assessments
- **Adapt T&E approaches for *Evolutionary* developments**
- **Test & Evaluation is conducted for two purposes- *discovery* during system development and *confirmation* of system performance after development**

Funding

- **Full Funding for system *no later* than Milestone B** - earlier if a follow-on system
- ***Transition funding*** - to support later entry into the acquisition process
- **Funding *sized to buy*** - at Milestone C

Reduced Total Ownership Costs

- **Use *market research* and *commercial products*** -- to increase competition
- **Use *Dissimilar Competition*** - non-head-to-head alternatives to meet capability need
- **Cost *addressed*** - in the ORD
- **Use *Open Systems Architecture*** - to reduce cost of technology insertions
- **Increase use of *Simulation Based Acquisition*** - to reduce costs for hardware prototypes
- ***Minimum* number of *mission-oriented Key Performance Parameters*** - to facilitate cost-performance trades

Deploy Interoperable and Supportable Systems

Interoperability

- **Interoperability requirements identified as Key Performance Parameters (KPP)**
- **Use of a C4I Support Plan to discuss how to meet Interoperability KPP**
- **“System-of-systems” management approach**
 - **Capstone Requirements Documents**
 - **MDAs & Testers will ensure thorough understanding of critical system interfaces and flow of consistent/reliable data/information between systems in the battlefield**
 - **Mutual understanding of key systems in a mission area**
- **Use of standardized data to facilitate interoperability and information sharing**

Deploy Interoperable and Supportable Systems (con't)

Supportability

- **Total life-cycle view, including operations, support, and disposal**
- **Emphasis on reliability built into design**
- **Requirement for supportability to be addressed in acquisition strategy**

Software

- **Requirement for use of software maturity matrix - achieve level 3 within a year of contract**
- **Emphasis on evolutionary (or “spiral”) development**
- **Recognition that software development may not use the same model as hardware development**
- **Recognition that software must be mature before deployment** - once maturity proven, software baselined and methodical and synchronized deployment plan implemented
- **Requirement for registration and Clinger-Cohen compliance**

IMPLICATIONS FOR THE COST COMMUNITY

Cost Estimating

- > New documents reviewed by CAIG**
- > DoD 5000.4-M still applicable (but needs to be updated)**
- > No change in cost estimating process proposed**

Outyear Funding

- Full funding at System Development (or earlier) vice Program Definition and Risk Reduction**
- DoD commitment still maintained in FYDP**

IMPLEMENTATION CHALLENGES

- **Employing new product support strategies**
- **Accepting a militarily useful capability early, based on demonstrated technology, and obtaining objective capability when technology matures**
- **Ensuring that successive evolutionary blocks are adequately funded**
- **Ensuring that “transition funding” is available to speed the transition of successful demonstrations to acquisition**
- **Integrating the test and evaluation community into the new acquisition approach**
- **Ensuring that the workforce (including industry) is adequately trained to successfully implement the new approach**
- **Assuring Congress that the new approach will maintain their visibility into DoD programs and continue their ability to verify DoD’s accountability for program success**

New Documents

- **DoD Directive (Change 1) January 4, 2001**
- **DoD Instruction (Change 1) January 4, 2001**
- **Interim Guidance Memo January 4, 2001**

FOR ADDITIONAL INFORMATION

- <http://www.acq.osd.mil/ar/ar.htm>
- <http://www.acq.osd.mil/ara/>
- <http://www.web2.deskbook.osd.mil/default.asp>

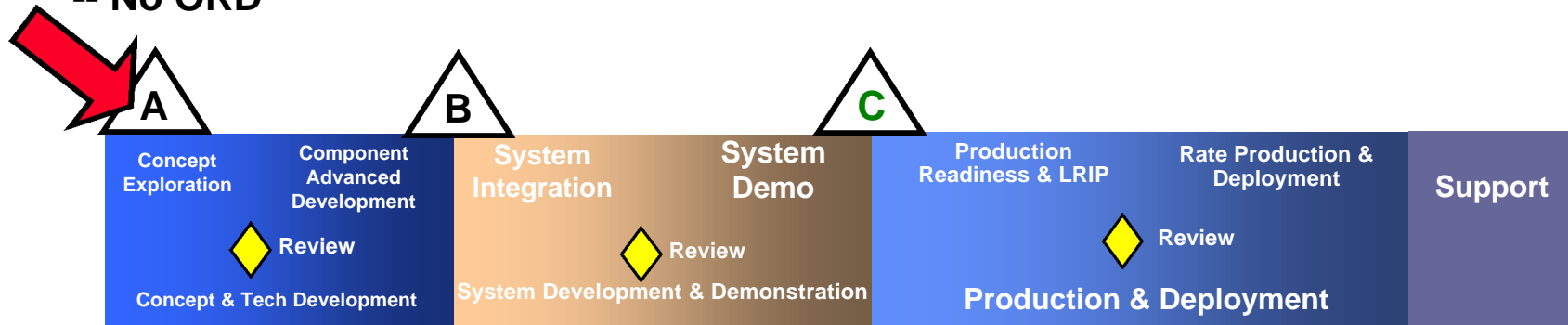
Backup Slides

Example 1

Need some materiel solution to attack space-based warheads

Enter at MS A

- Multiple Concepts to explore
- Technologies immature
- No ORD



Concept Exploration -- look at paper studies of alternative ways of attack

Component Advanced Development -- mature component technologies

System Integration -- development integration of components to meet system requirements

System Demo -- demonstrate product maturity through simulation and test

LRIP -- mature manufacturing capability and operationally test

Full-Rate -- produce system in quantity

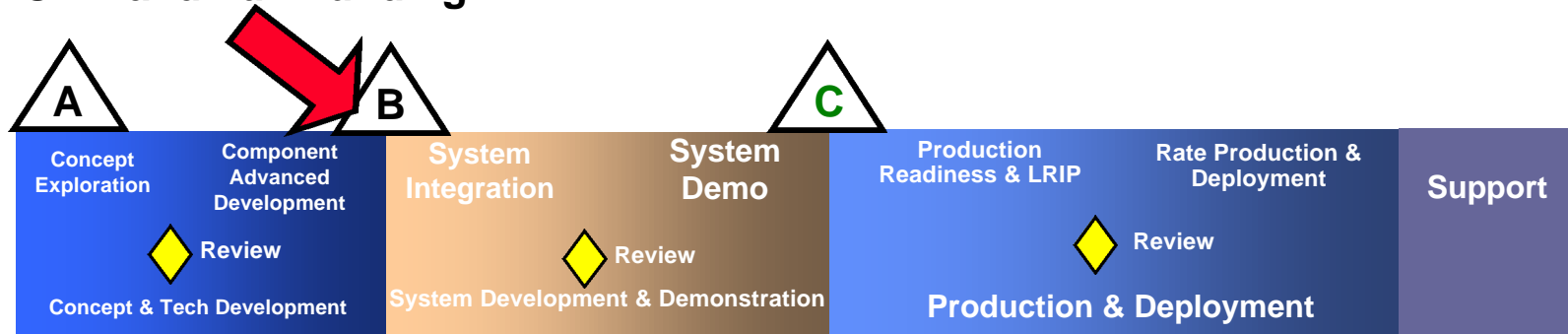
Support -- sustain system

Example 2

Need new airplane transport to carry heavy and bulking cargo

Enter at MS B

- Concept/architecture in place
- Mature technology
- ORD and Full-Funding



System Integration -- development integration of components to meet system requirements

System Demo -- demonstrate product maturity through simulation and test

LRIP -- mature manufacturing capability and operationally test

Full-Rate -- produce system in quantity

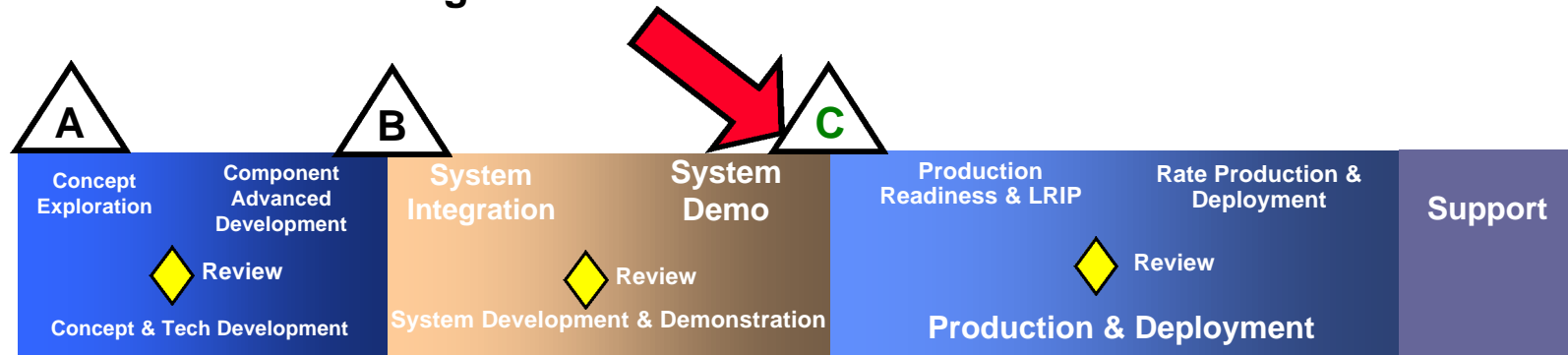
Support -- sustain system

Example 3

Tracking system to keep visibility
of issue items

Enter at MS C

- Item available without
development
- ORD and Full-Funding

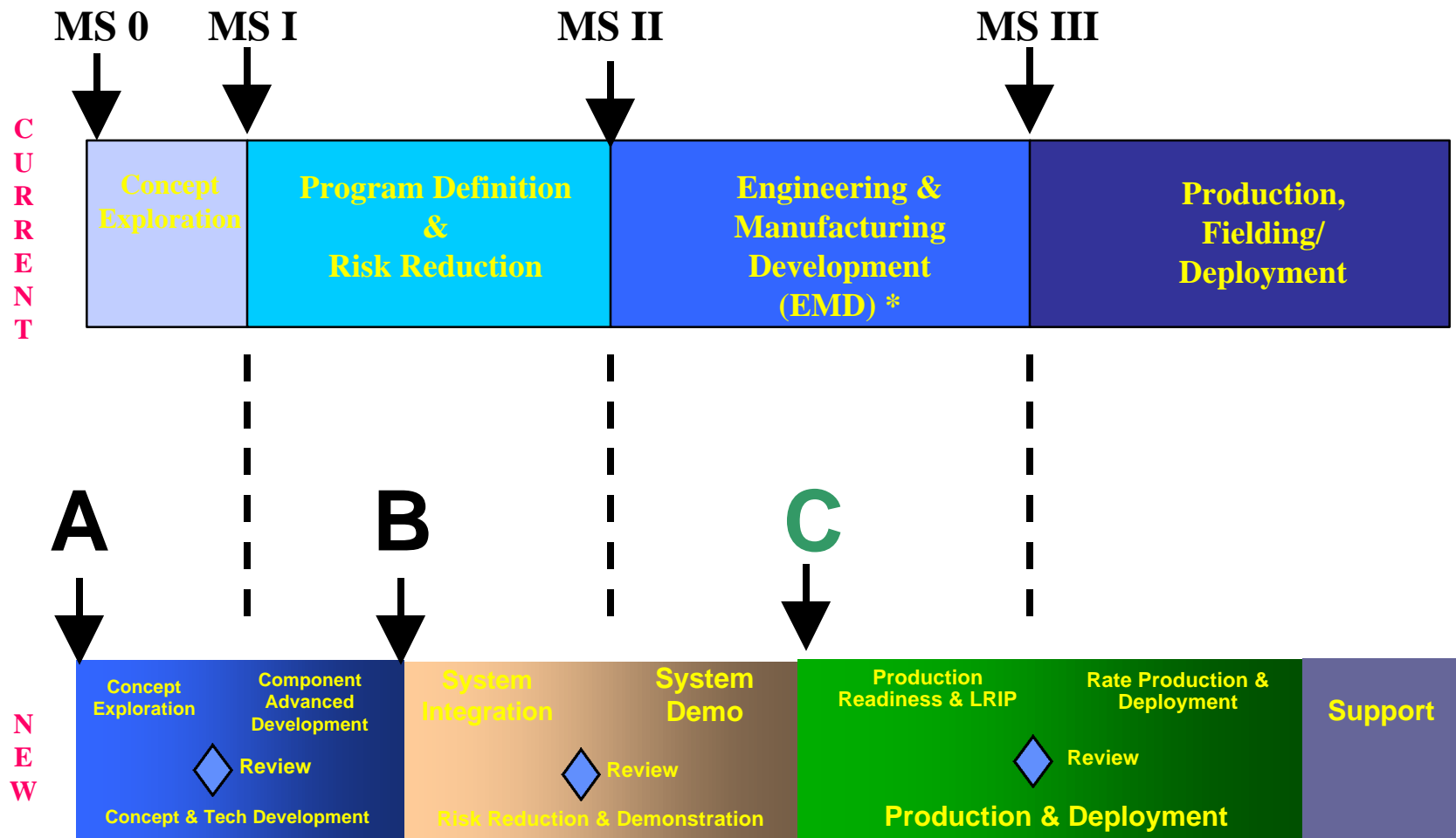


LRIP -- operational test to make sure that it works in our environment

Full-Rate -- produce system in quantity

Support -- sustain system

Model Comparisons



OLD VS. NEW SYSTEM

OLD

- Milestones 0, I, II, III
- DAB/DAE/SAE Reviews
- Single Entry Point
(other entry points “non-traditional”)
- Requirements (MNS/ORD)_
- Full Funding Required at PDRR
- Congressional Visibility, Accountability,
Flexibility/OSD & Service Responsibilities

NEW

- Milestones A (Analysis), B (Begin Development), C (Commitment)
- DAB/DAE/SAE Reviews
Decision/Interim Progress Reviews
- Multiple Entry Points
(other entry points part of system)
- Requirements (MNS/Time-Phased ORD)
- Full Funding Required at System Development (or before if platform replacement)
- SAME

CONGRESSIONAL ISSUES

Visibility, Accountability, Flexibility oversight mechanisms

- **No Change in Congress's current control over funds, especially for reprogramming and new starts**
- **No Change in major oversight and reporting mechanisms (SAR's, detailed budget justifications, Beyond LRIP Report)**

Outyear Funding

- **Full funding at System Development (or earlier) vice Program Definition and Risk Reduction**
- **DoD commitment still maintained in FYDP**

Getting the Most out of Demonstrations

- **Firm Exit Criteria and Well Defined Deliverables Now Required**

STATUTORY & REGULATORY CHANGES

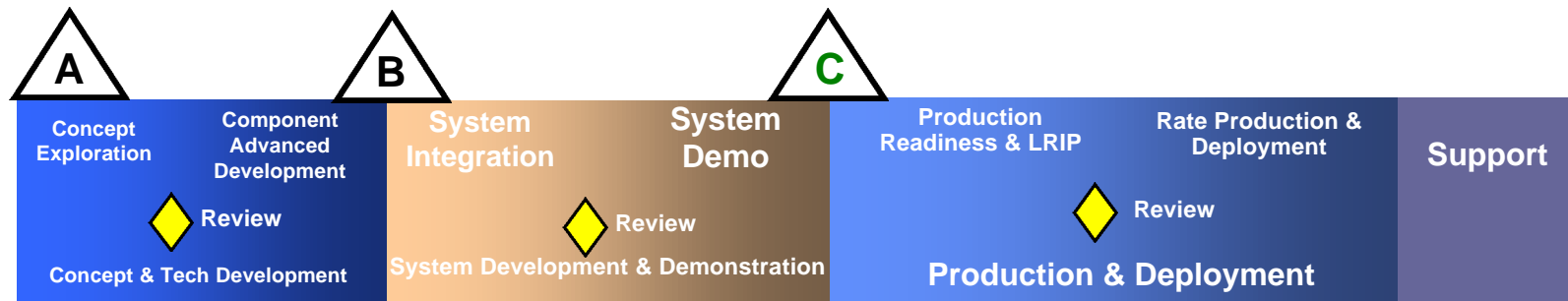
The new approach will require:

- Changes to conform current statutes to new milestone names and phases (e.g., 10 USC 2366, 2399, 2400, 2434, 2435)
- Changes to align statutory requirements with work content (e.g., 10 USC 2399, 2434) - DOT&E and CAIG support
- Changes in Financial Management Regulation to recognize new milestone names and phases

*No Substantive Changes
to Current Law*

CONCEPT OVERVIEW

Programs can enter the process at various points depending on concept and technology maturity



**The Following Slides Present
Hypothetical System Examples**

“Phase A” - Work Content



Concept Exploration

- Paper studies of alternative concepts for meeting a mission
- Exit criteria: Specific concept to be pursued & technology exists.

Component Advanced Development

- Development of subsystems/components that must be demonstrated before integration into a system
- Concept/tech demonstration of new system concepts
- Exit criteria: System architecture & technology maturity

“Phase A” - Examples



Enter at Concept Exploration

Joint Maritime Command & control Capability

- A command platform for the Joint Tactical Forces Commander
- Need to explore various concepts

Hard & Deeply Buried Target Capability

- Need to penetrate buried target
- No specific system concept

Advanced Narrowband System

- Global narrowband communication system composed of multiples segments
- Need to explore various concepts

Enter at Component Advanced Development

Airborne Laser

- Airplane Concept, but laser technology not yet mature
- Component work on laser before integration into plane.

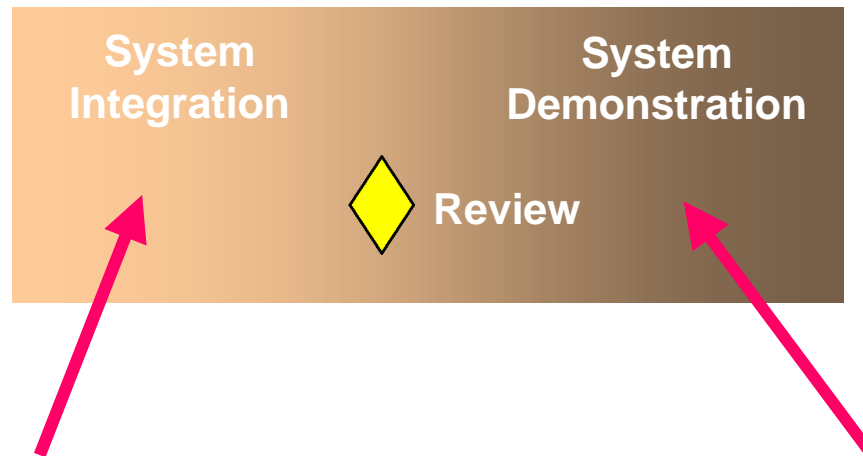
JAST

- Airplane Concept but working on technologies used in plane

DD21 -- 21st Century Destroyer

- Ship Concept but component level technology not yet mature.
- Propulsion system, weapon and radar systems in development

“Phase B” - Work Content



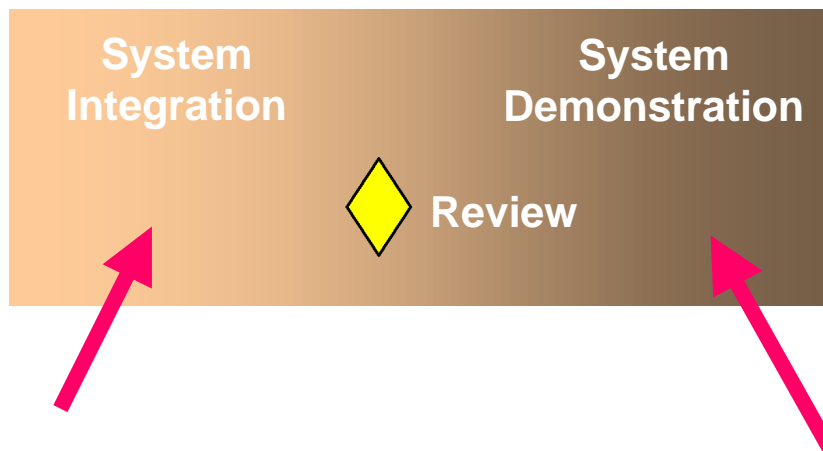
System Integration

- System Integration of demonstrated subsystems and components
- Reduction of integration risk
- Exit criteria: System demonstration in a relevant environment (e., first flight)

System Demonstration

- Complete development
- Demonstrate engineering development models
- Combined DT/OT testing
- Exit criteria: System demonstration in an operational environment

“Phase B” - Examples



Enter at System Integration

F16 Upgrade

- Upgrade to existing plane
- System architecture in place (mud -fighter)
- Mature technology; work focused on integration

Joint Direct Attack Ammunition (JDAM)

- Strap-on guidance kit to enhance accuracy
- System architecture in place (kit on dumb bomb)
- Work focused on integrating kit with smart bomb and reducing risk

CVN 77

- Construction of new Nimitz-class carrier incorporating lessons learned from previous versions

Enter at System Demonstration

Fast Sea Lift Ships

- Commercial ships modified to meet military needs

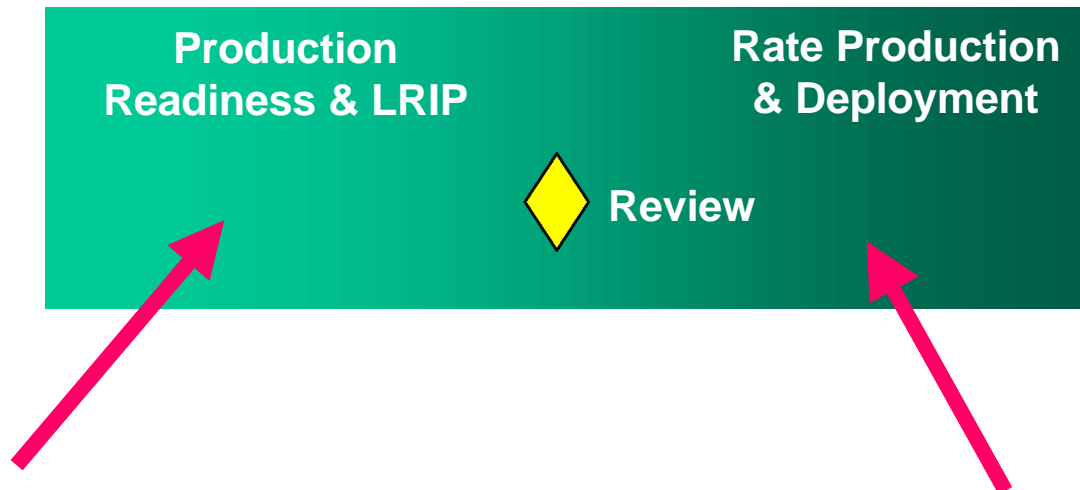
Joint Primary Aircraft Training System

- Brazilian model selected
- Work focused on integration of subsystems
- (ejection seats) and demonstration

Global Hawk Transition

- UAV program previously an ACTD
- Work focused on upgrading tested system to meet ORD
- Flight test demonstrations continuing

“Phase C” - Work Content



Production Readiness & LRIP

- IOT&E, LFT&E of production-representative articles
- Establish manufacturing capability
- Execute low-rate production
- Exit criterion: Favorable Beyond-LRIP Report

Rate Production & Deployment

- Execute full rate production
- Deploy system

“Phase C” - Examples



Enter at Milestone C

Non-Development Airlift Aircraft

- Procurement of modified commercial Boeing 747
- IOT&E needed to move beyond LRIP

C-9

- Procurement of DC-9 aircraft
- IOT&E needed to move beyond LRIP

Administrative Use Vehicles:

- Buy commercial vehicles for use at post/camps/stations